The Correlation Between Empathy and Perceived Social Support in a College Student Population

Julie McDonnell

19398886

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Name: Julie McDonnell

Student Number: x19398886

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Abstract

A positive perception of social support and high empathy have been shown together previously to produce better outcomes for college students. The aim of the present study was to further expand on this research and examine whether a relationship exists between perceived social support and empathy in a college student population. The study hypothesised a positive correlation between empathy and perceived social support, a gender difference in empathy level, and a difference in empathy and social support between different college courses. 81 college students completed demographic information, the Interpersonal Support Evaluation List-12, and the Toronto Empathy Questionnaire. Although a small, positive relationship was found, Pearson's Correlation showed the correlation between empathy and perceived social support was non-significant ($p = .306$). Further analysis from a t-test and one-way ANOVA found significant differences between male ($M = 48.97$, $SD = 6.09$) and female ($M = 52.61$, $SD = 5.45$; $p = .007$) empathy scores, and college course ($p = .002$) in total empathy level. No significant differences were found for perceived social support between courses ($p = .584$). Findings suggest that empathy is important for college students. Development of empathy may be necessary to help students maintain positive perceptions of social support.

Contents

Literature Review

Empathy can be defined as one's capacity for sharing in the emotional state of another individual and to feel affected by their emotional state (Paciello et al., 2012). The ability to empathise with others increases quality of social interactions and affects behaviour towards others (McDonald & Messinger, 2011). Previous research has indicated that Theory of Mind, the ability to recognise that another individual's beliefs and knowledge differ to that of our own (Frith & Frith, 2005), is of vital importance to one's capacity for empathy (O'Connor et al., 2007). Empathy is beneficial for individuals in the development and maintenance of everyday relationships (Kerem et al., 2001) and life satisfaction (Morelli et al., 2015).

There are three main types of empathy (Stephan & Finlay, 1999). Cognitive empathy refers to an individual's ability to identify and understand the personal and emotional state of another (Goldman, 2011). Emotional empathy is the ability to share in the emotional state of another individual, one's emotional reaction correlates with the emotions and situation of another (Jones et al., 2010). Compassionate empathy arises when witnessing another person suffering. The suffering of another person leads to a motivation to help the person in need (Goetz et al., 2010). Compassionate empathy is the consequence of emotional and cognitive empathy, and it is linked to prosocial behaviour (Powell & Roberts, 2017). Previous research has indicated that there is a significant link between empathy and prosocial behaviour (Eisenberg & Miller, 1987; Davis, 2015; Ding & Lu, 2016). The Empathy-Altruism Hypothesis suggests one's feelings of empathy for an individual in distress are associated with prosocial motivation to help that person, rather than gaining benefit to themself (Batson et al., 1988). Alongside positive correlation with prosocial behaviour, previous research has found that empathy correlates with other constructs such as self-esteem (Brewer & Kerslake, 2015), loneliness (Beadle et al., 2012), and social support (Devoldre et al., 2010).

Social support is a fundamental aspect of everyday life (Kim et al., 2008). Social support is an interpersonal experience (Segrin & Passalacqua, 2010). One's cognitive perception of social support received is an important aspect that helps them to achieve satisfaction with their social relationships and establish reliable bonds (Coventry et al., 2004). Social support exists in different forms, emotional support, instrumental support, and tangible support (House et al., 1988; Balaji et al., 2007; Sherbourne & Stewart, 1991). Research has shown that a limited availability of the resources one receives from social support can have negative implications for perception of their social support, and this in turn can have detrimental effects for one's social interactions (Harasemiw et al., 2017). Social support has also been associated with better mental and physical health outcomes (House et al., 1988), with previous research indicating that higher levels of social support can promote mental and physical wellbeing (Cohen, 2004; Cobb, 1976; Uchino, 2009). Social support gives people a feeling of being loved and belonging in a communication network, factors that promote positive mental health outcomes (Cobb, 1976). The literature has identified different outcomes in ones received social support and perceived social support (Uchino, 2009). One's perception of their social support can develop through their early familial support interactions, attachment style and personality (Anders & Tucker, 2000), which therefore can be more influential for physical and mental health outcomes as they grow older. An important finding is that one's satisfaction with their social support has positive implications for reducing levels of loneliness (Hombrados-Mendieta et al., 2013; Bernardon et al., 2011; Lee & Goldstein, 2016). If one experiences lower levels of loneliness due to a high perception of social support, this can lead to better health outcomes (Segrin & Domschke, 2011), including increased physical activity and increased quality of life (Kang et al., 2018; Musich et al., 2015).

Many studies have examined a lack of social support and the implications for feelings of loneliness (Hombrados-Mendieta et al., 2013; Adamczyk & Segrin, 2015; Segrin & Domschke; Kang et al., 2018; Shaw & Gant, 2002). The consensus of this research has found a negative correlation between high social support and loneliness in adult populations. These findings imply to future researchers that perceived social support is a fundamental requirement for reducing loneliness (Hombrados-Mendieta et al., 2013). Hombrados-Mendieta et al. (2013) examined the relationship between perceived social support and loneliness using of an adult population with an age range of 18-95. Although a significant negative relationship was found between loneliness and satisfaction with social support, there are drawbacks to this study. Generalising this relationship across an adult population may be too broad and does not consider external life factors experienced at different stages of life that can alter one's perception of social support (Marroquín et al., 2019). Future research should address a narrower population to better understand the impact of perceived social support. The forementioned literature surrounding perceived social support and loneliness has also often investigated social support as a mediator between loneliness and another variable, such as self-esteem (Shaw & Gant, 2002), and life satisfaction (Adamczyk & Segrin, 2015). More research is needed to investigate the benefits of high perceived social support alone, rather than solely as a mediator of two separate variables.

Among examination of perceived social support in relation to different variables, a relationship that has been explored frequently in the literature is that of perceived social support and empathy (Molero-Jurado et al., 2018; Culda et al., 2016; Park et al., 2015; Barry et al., 2014). Studies have examined perceived social support and empathy together as mediators of burnout, self-esteem (Molero-Jurado et al., 2018), guilt-proneness (Culda et al., 2016), stress (Park et al., 2015), grandiose narcissism, and vulnerable narcissism (Barry et al.,

2014). Culda et al., (2016) examined perceived social support and empathy level of predictors of guilt-proneness in an inmate population. Results showed perceived social support to be a significant predictor of guilt-proneness, however empathy was not a significant predictor. Although this study paves the way for future research to explore the importance of social support to rehabilitate prisoners, the study only examined male offenders, and first or second-time offenders. No gender comparison can be made between inmates, or whether a longer history of convictions may have influenced social support or showed a significant correlation with empathy. Barry et al., (2014) found conflicting associations between empathy and narcissism, and perceived social support and narcissism in students. Students with grandiose narcissism reported high levels of both perceived social support and empathy, suggesting participants with characteristics of grandiose narcissism may have a complementary view of oneself. In contrast, results indicated that vulnerable narcissism and non-pathological narcissism correlated negatively with both perceived social support and self-reported levels of empathy. The lack of empathy reported by participants high in vulnerable narcissism was also linked to a positive correlation between aggression and narcissism. These findings highlight the lack of meaningful social interactions associated with vulnerable narcissism. This research highlights the importance of perceived social support and empathy as mitigating factors between aggression and narcissism, and future research can explore empathy as a possible intervention for aggression in children and adolescents with narcissistic tendencies. A limitation to these findings is the lack of interaction between independent variables empathy and perceived social support. Each variable was measured separately in relation to narcissism, and perceived social support and empathy were not compared to each other. The forementioned literature has provided evidence that empathy and perceived social support are often predictors of similar outcomes

for young adults and students, therefore there is a gap for future research to explore whether there is a relationship between perceived social support and empathy among students.

The literature has suggested that empathy and perceived social support are of critical value to college students (Lee et al., 2014; Pamukçu & Meydan, 2010; Valente, 2016). Empathy has appeared to aid student's development of social support (Valente, 2016). When one develops empathy toward others and oneself, they can learn to communicate with efficacy. In Valente's (2016) qualitative study of university students, participants associated empathy with positive relationships and emotional sharing. This study shows that developing empathy may be a necessity before positive social support can be built amongst college students. The study highlights the importance of empathy from a phenomenological perspective, and a variety of college students were included. In addition to empathy, high levels of social support can aid students with transition to college (So & Fiori, 2022), offset against depressive symptoms (Lee et al., 2014), and lead to reduced levels of loneliness and stress (Mattanah et al., 2010; Kalliopuska, 1986; Beadle et al., 2012). Kalliopuska (1986) conducted a mixed method study with undergraduate psychology students and found a significant positive correlation between positive loneliness, defined as a desire for solitude and opportunity for self-motivation, and high empathy. Participants with the highest empathy levels experienced negative loneliness the least. The study also found females had higher empathy and higher positive loneliness levels than males. Male and female participants were of unequal distribution, however and results may have reflected this inequality. Future research should use a more evenly distributed sample to assess the accuracy of gender differences in empathy levels. This study is quite outdated, and results may not reflect factors that affect college students' levels of loneliness, empathy, and perceived social

support in the current day and age. More research is needed to assess the impact of empathy levels and perceived social support amongst college students in recent years.

Subsequent research has replicated evidence for differences in empathy scores between male and female students (Park et al., 2015; Strekalova et al., 2019). Park et al., (2015) examined the relationship between empathy and perceived social support in a medical student population. Results showed that empathy levels correlate positively with perceived social support. The study found sex differences in empathy levels and perceived social support, as females showed higher levels of social support than males. Results showed a negative association between stress and empathy however, this was only significant among male medical students. Possible reasoning for this correlation amongst male participants is that stress can result in emotional exhaustion and depersonalisation, therefore negatively impacting one's empathy level (Raiziene & Endriulaitiene, 2007). Previous research has demonstrated that women show increased sensitivity to emotional states (Bianchin & Angrilli, 2012). Although women may experience the same stress as males, they can show higher sensitivity and greater empathic tendencies than males (Haldorsen et al., 2014; Park et al., 2015). This study was insightful in examining the correlation between empathy and perceived social support and highlighting the gender differences in both social support and empathy levels. Although the forementioned studies have highlighted the important role empathy and social support play in helping college students combat loneliness and stress, no comparison can be made between different student course groups given the examination of medical students (Park et al., 2015) and psychology students (Kalliopuska, 1986) alone. Considering the intensity of medical courses and the stressors one can experience arising from a medical setting (Koinis et al., 2015), participants' perception of social support may have been compromised. It is impractical to generalise these findings to a wider college

student population. Future research should address the correlation between perceived social support and empathy across a broader range of college courses to determine if there are significant course group differences in perceived social support and empathy.

Pamukçu & Meydan (2010) expanded on the work of Kalliopuska (1986) and examined perceived social support and empathy as predictors of loneliness in a general college student population. Results replicated previous findings, showing a significant negative correlation between both empathic tendency and loneliness, and perceived social support and loneliness. Rather than focusing on a certain group of students like the forementioned studies, participants spanned across a general college student population. The focus of this study however was perceived social support and empathic tendencies in relation to loneliness, it cannot be inferred from this study that empathy and perceived social support have a direct correlation with each other. The study is important as the wide range of college students studied suggests that empathy and social support are of critical value to all college students. However, there are few studies like that of Pamukçu & Meydan (2010) and Valente (2016) that assess the role of empathy amongst a general college student population. Furthermore, limited research has assessed the correlation between perceived social support and empathy among college students. Given the evidence of the beneficial outcomes of high perceived social support and high empathy for college students (Wilson et al., 2020; Park et al., 2015; Pamukçu & Meydan, 2010), future research should examine these concepts in relation to each other.

The Current Study

There is plentiful evidence that positive perceived social support is beneficial for one to maintain empathy, particularly amongst college students (Pamukçu & Meydan, 2010; Park

et al., 2015; Molero-Jurado et al., 2018), however many of these studies have looked at empathy and social support as predictor variables of a separate criterion variable. The current study aims to examine if there is a correlation between perceived social support and empathy among college students. It is important to look at the impact of perceived social support in relation to empathy level, as if a correlation is found in this research, this can aid future research in determining whether improving perception of social support is a beneficial intervention to help college students increase their levels of empathy. This research can also guide subsequent research in examining whether social support and empathy can be increased together to mitigate against stress, loneliness, or academic challenges faced by college students. The current study will take on a quantitative approach and use self-report measures to examine if there is a correlation between perceived social support and empathy among college students.

As previous research has found a significant difference in empathy levels between males and females (Park et al., 2015; Kalliopuska, 1986), the present study aims to follow up this research and hypothesises that there will be significant gender differences in empathy scores. Previous research has focused on the influence of perceived social support for a specific course group (Park et al., 2015; Devoldre et al., 2010), yet limited research has examined variance in perceived social support and empathy between a broader range of college courses. The current study will examine if there are significant empathy or social support differences amongst a range of college courses. This study will aid ensuing research to better understand the levels of perceived social support and empathy that may be required amongst different course groups to improve college experience and possibly buffer against academic stresses. The aims of the current study have generated the following four research questions.

Research question 1: Do high social support scores correlate positively with high empathy levels? A Pearson product-moment correlation coefficient will be conducted to test the hypothesis that high social support scores are a significant predictor of high levels of empathy.

Research question 2: Do age range, gender, college course, and perceived social support scores predict variance in empathy levels? A hierarchical multiple regression will be run to test the hypothesis that predictor variables total perceived social support, gender, age range, and college course will significantly predict variance in criterion variable empathy levels.

Research Question 3: Are there differences in empathy levels between males and females? An independent samples t-test will be run to test the hypothesis that females will have higher levels of empathy than males.

Research Question 4: Do students in different college courses show differences in empathy and social support levels? A one-way ANOVA will be conducted to test the hypothesis that there will be a significant difference in empathy and perceived social support scores between students in different courses.

Method

Participants

Participants of this study consisted of a total sample size of 81 college students. 83 participants were initially recruited, however 2 participants stated that they were not in college, therefore their data was excluded from analysis. Of the 81 participants eligible for inclusion, 29 participants were male (35.8%), 51 participants were female (63%), and 1 participant was non-binary (1.2%). Participants were asked demographic information regarding their age range, gender, and college course. 61 participants were aged between 18 and 21 (75.3%), 13 participants were aged between 22 and 25 (14.8%), 4 participants were aged between 26 and 29 (4.9%), and 4 participants were 30 years old or older (4.9%). The college course options participants could select were psychology, computers or IT, business, science or medicine, arts, and other. Of these choices, 24 participants study psychology (29.6%), 7 participants study computers or IT (8.6%), 14 participants study science or medicine (17.3%), 7 participants study arts (8.6%), 13 participants study business (16%) and 16 participants study a course not listed (other) (19.3%). Participants of this study were recruited through convenience sampling. To recruit participants, the researcher used their personal social media accounts on Instagram, Facebook, Twitter, and Reddit to advertise the study to college students. Convenience sampling was used to ensure a wide range of college students could be reached in an efficient timeframe.

Measures and Materials

A demographic section and two questionnaires were used in the present study. The two questionnaires were the Interpersonal Support Evaluation List-12 (Cohen et al., 1985) and the Toronto Empathy Questionnaire (Spreng et al., 2009).

Demographic Section

Participants firstly answered four demographic questions (see appendix 4). Participants were asked to state of they are currently in college (yes or no). Participants were also asked to indicate their age range (18-21, 22-25, 26-29 or 30+), the most accurate description of their college course (psychology, science or medicine, computers or IT, business, arts, or other) and their gender (male, female, or non-binary).

Interpersonal Support Evaluation List-12

The first questionnaire used in this study was the Interpersonal Support Evaluation List-12 (ISEL-12) (see appendix 1). The ISEL-12 is a short form measure of the original ISEL, a 40- question scale that measures perceived social support (Cohen & Hoberman, 1983). The ISEL-12 has been shortened to 12 questions. The three subscale scores of the ISEL-12 represent appraisal, belonging, and tangible social support (Merz et al., 2014). The 12 questions are answered on a four-point scale, in which participants respond to statements about their perceived social support with “definitely false” = 1; “probably false” = 2; “probably true” = 3; or “definitely true” = 4. The scores from each item are added together to find a total social support score. Highest possible total social support score in this study = 48. Items 1, 2, 7, 8, 11, 12 are reverse scored. The appraisal subscale is comprised of items 2, 4, 6, 11. The belonging subscale is comprised of items 1, 5, 7, 9. The tangible support subscale is comprised of items 3, 8, 10, 12. Scores are continuous to calculate a total score for one’s perceived social support. This scale has been used frequently in previous research. This scale is adapted from the original ISEL-40 question scale, which has shown good internal consistency and high test-retest reliability (Merz et al., 2014; Cohen et al., 1985). The scale

also has convergent validity and adequate internal consistency (Merz et al., 2014). The ISEL-12 showed high reliability with the current sample ($c\alpha$ =.86)

Toronto Empathy Questionnaire

The second questionnaire used was the Toronto Empathy Questionnaire (TEQ) (see appendix 2). The TEQ is a 16-question self-report tool that assesses empathy as an emotional process, and each question in the TEQ accounts for a theoretical aspect of empathy. Question 1 and 4 examine how a person's perception of someone elses emotional state stimulate the same emotion in themselves. Questions 2, 7, 10, 12, 15 examine how one assesses other's emotional states based on sensitivity to observed frequency of behaviour. Questions 3, 6, 9, 11 examine sympathetic physiological arousal. Questions 5, 14, 16 examine altruism. Question 8 examines emotion comprehension in others. Question 13 examines the frequency of behaviours that elicit higher-order empathic responding. The empathic tendencies are sensitivity, sympathetic emotional arousal, and altruism. Question responses are scored in accordance with this scale; Never = 0; Rarely = 1; Sometimes = 2; Often = 3; Always = 4. Questions 1, 3, 5, 6, 8, 9, 13, 16 are positively scored. Questions 2, 4, 7, 10, 11, 12, 14, 15 are negatively scored. The negatively worded questions are reverse scored. Scores are added to derive a total, with a possible high score of 64. High scores between 64 and 46 indicate higher levels of self-reported empathy whereas scores below 45 indicate below average empathy levels. The aim of the TEQ is to identify commonalities among conceptions of empathy described in recent literature. In the initial study using the TEQ, validity was tested alongside the Empathy-Quotient and the Autism-Quotient (Baron-Cohen et al., 2001; Baron-Cohen & Wheelwright, 2004). Results found that TEQ scores correlated negatively with the Autism-Quotient and positively with the Empathy-Quotient, providing good internal

consistency and high test-retest reliability (Spreng et al., 2009). The TEQ showed adequate reliability with the current sample ($c\alpha$ = .71).

The required materials participants needed to take part in the study were an electronic device such as a phone, laptop, or tablet, as the questionnaires were put together online in a Google Form. A link to the Google Form was available to participants through the researcher's social media, therefore participants needed internet access to complete the questionnaires in this study.

Design

This study used a correlational cross-sectional design. A quantitative design approach was used to gather data, as participants answered questions in the form of a survey on Google Docs. A Pearson's product-moment correlation coefficient was used to examine research question 1 and explore the direction of the relationship between empathy levels and perceived social support. A hierarchical multiple regression was used to examine research question 2. Predictor variables of age range, total perceived social support level, gender, and college course were used to examine effects on the criterion variable empathy level. A between groups design was used to examine research questions 3 and 4. To examine research question 3, a one-way between groups ANOVA was run to assess differences in empathy level and social support levels between different college courses. An independent samples t-test was run to compare gender differences in empathy levels for research question 4.

Procedure

Participants first heard of this study through social media. The researcher advertised this study on social media platforms Instagram, Facebook, Reddit, and Twitter. The researcher also advertised this study in an NCI final year psychology student group chat on

WhatsApp. Participants clicked on a link to the Google Form to bring them to the study. The study on Google Forms was put into six components. The first component was an information sheet, describing the purpose of the study, and what participation would involve, including the names of the questionnaires in the study (see appendix 1). Participants were informed that they would be answering all of 12 questions in the ISEL-12 and all of 16 questions in the TEQ by ticking the answer that corresponded most accurately with their own perceptions of their social support and feelings of empathy. In the second component, participants were asked to provide informed consent, giving their voluntary consent to participate, and to confirm they were aged 18 or over. Informed consent was obtained through a consent form on the Google Form, in which participants had to click a box providing informed consent (see appendix 2). Participants could not advance further in the study without providing informed consent. After consent was obtained, participants moved to the third component, in which they were asked to provide demographic information. Demographic information required for the study was age range, college course, and gender. Participants were also asked whether they were in college. Any participant who answered "no" was excluded from the study. In component four, participants were brought to the first questionnaire, the ISEL-12. After completing the ISEL-12, participants were brought to the second questionnaire, the TEQ in component five. After completing the study, participants were brough to component six, and given a debrief sheet. The debrief sheet reiterated the purpose of this study and purpose of participation. Necessary helplines were provided in case participants felt negative effects of the content presented in the study (see appendix 3).

Ethical Considerations

This study was given approval from the National College of Ireland ethics committee. The NCI ethics committee principles are in line with the principles of the PSI Code of Ethics

(Psychological Society of Ireland, 2011) and the NCI Ethical Guidelines for Research Involving Human Participants. To ensure the study complied with the NCI Code of Ethics sufficiently, all necessary information regarding potential risks of participation were addressed clearly in the information sheet.

To comply with the PSI Principle of Respect for the Rights and Dignity of the Person, participants completed the study privately on their own device, and their data was kept anonymous. Participants were fully informed of their role in the study, as this information was provided in the information sheet given prior to participation. To protect beneficence and welfare of participants, each participant was required to provide informed consent before participating. Participants were also informed of their right to withdraw at any point up until submission of data.

To comply with PSI Principles of Competence and Integrity, the researcher did not exceed their personal limits or deceive participants about their qualifications. The researcher stated in the information sheet who they are and the purpose of conducting the study. No deception was used in this study.

To comply with the PSI Principle of Responsibility, the researcher clearly stated to participant the potential risks of participation in the information sheet. There was no physical risk expected to have arisen from the study as the entire study took place online. Although psychological risk was minimal in the current study, helplines were also provided for participants in the debrief sheet if they felt psychologically distressed by the content of the study.

Results

Results of Descriptive Statistics

A total of 81 participants took part in this study. Initially data from 83 participants was recorded, however 2 participants did not fit the specification required for the study and were excluded from analysis. Upon removal of this data, preliminary analyses indicated that Total Perceived Social Support (PSS) approximated normality. Total empathy scores were unevenly distributed and skewed negatively. Each variable contained several outliers. Outlying scores were retained for the purpose of the current study. Descriptive statistics for each measured variable in this study can be seen in Table 1 and Table 2 below.

Table 1

Descriptive statistics for categorical variables Age Range, Course of Study and Gender.

Variable	Frequency	Valid %
Age Range		
18 – 21	61	75.3
22 – 25	12	14.8
26 – 29	4	4.9
30 +	4	4.9
Course of Study		
Psychology	24	29.6
Computers/ IT	7	8.6
Science/ Medicine	14	17.3
Arts	7	8.6
Business	13	16.0

Other	16	19.8
Gender		
Male	29	35.8
Female	51	63.0
Non-binary	1	1.2

Table 2

Descriptive statistics for continuous variables Total PSS, and Total Empathy

Variable	*M* [95% CI]	*SD*	Range
Total PSS	36.56[35.06, 38.05]	6.77	16-48
Total Empathy	51.38[50.03, 52.72]	6.00	32-64

Note: PSS = Perceived Social Support

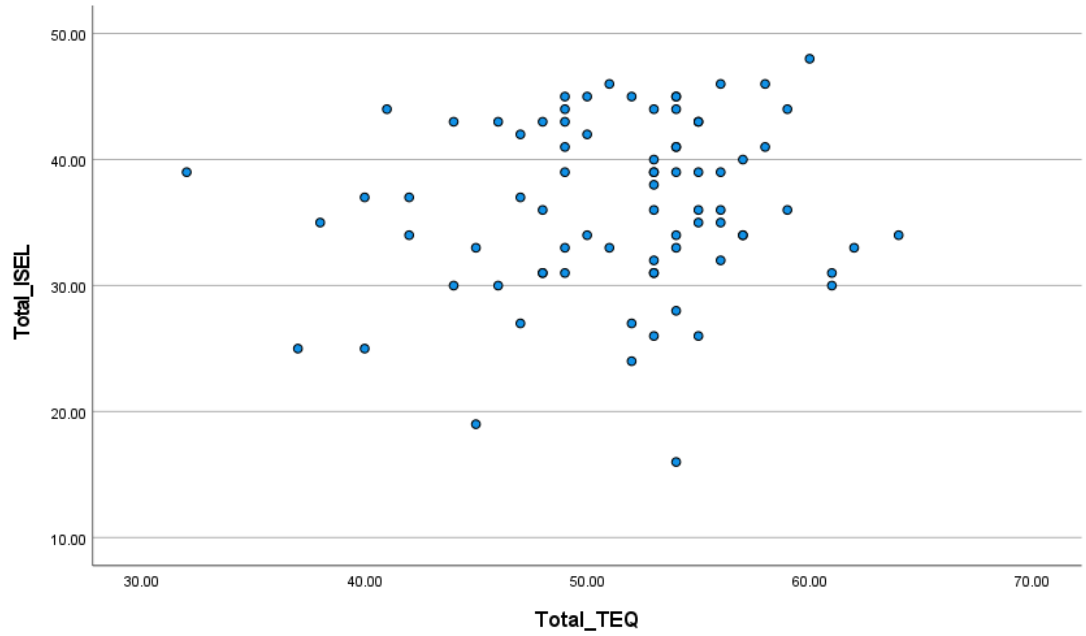
Results of Inferential Statistics

Hypothesis 1

The relationship between Total Empathy and Total PSS was investigated using a Pearson product-moment correlation coefficient. Preliminary analyses were performed to confirm no violation of the assumptions of normality and linearity. There was a small positive relationship between empathy and perceived social support, $r = .12$, $n = 79$, $p = .306$, with high levels of empathy associated with high levels of perceived social support. The positive relationship between the two variables did not reach significance. Results of the Pearson's Correlation are displayed in Graph 1 below.

Graph 1

Scatterplot Summary of Pearson's Correlation for PSS Scores and Empathy Scores



Note: Total_ISEL = PSS Scores. Total_TEQ = Empathy Scores.

Hypothesis 2

Hierarchical multiple regression was used to assess the ability of gender and course of study to predict levels of empathy after controlling for total perceived social support and age range. Preliminary analyses were conducted to ensure no violation of normality, linearity, multicollinearity, and homoscedasticity assumptions. Results of the Cook's and Mahalanobis Distance test indicated several potential multivariate outliers amongst the data. However, these outlies were examined using a chi-square cumulative distribution test and results found no significant outliers. Age range and total perceived social support were entered at step 1. They explained 9% of the variance in total empathy levels. After the entry of course of study and gender at step 2, the total variance explained by the whole model was 20%, F (4, 74) = 4.62, p = .002. The two control measures explained an additional 11% of the variance in

empathy levels after controlling for course of study and gender responding, *R* squared change = .11, *F* change (2, 74) = 4.98, *p* = .009. In the final model, only the control measure age range, and the predictor variable gender were statistically significant. Gender recorded a higher semi-partial correlation value (*sr* = .29, *p* = .007) than age range (*sr* = .22, *p* = .044). The results of the hierarchical multiple regression are summarised in Table 3 below.

Table 3

Hierarchical Multiple Regression Analysis Summary Predicting Total Empathy Levels with Age Range, Total PSS, Course of Study and Gender

Variable	R^2	R^2 Change	*B*	*SE*	*β*	*t*	*p*
Step 1	0.92	0.92					
Constant			43.74	3.90		11.21	<.001
Total PSS			.13	.10	.15	1.32	.192
Age Range			2.11	.82	.28	2.57	.012
Step 2	0.20	0.11					
Constant			36.44	4.41		8.26	<.001
Total PSS			.13	.09	.15	1.40	.166
Age Range			1.66	.81	.22	2.05	.044
Course of Study			.55	.41	.15	1.35	.180
Gender			3.44	1.25	.29	2.76	.007

Note: PSS = Perceived Social Support

Hypothesis 3

An independent samples t-test was conducted to compare the total empathy scores between males and females. As only one non-binary participant participated in this study,

their data was excluded in this analysis. There was a significant difference in scores between males (M = 48.97, SD = 6.09) and females (M = 52.61, SD = 5.45; t (78) = -2.75, p = .007, two-tailed). The magnitude of the differences in the means (means difference = -3.64, 95% CI [-6.28, -1.01]) was moderately large (eta squared = -0.11), with females scoring higher empathy levels than males.

Hypothesis 4

A one-way between groups ANOVA was run to explore the impact of college course on levels of perceived social support, as measured by the ISEL-12 and levels of empathy, as measured by the TEQ. Participants were split into five groups according to their college course (Group 1 = art and other students, Group 2 = psychology students, Group 3 = computer students, Group 4 = business students, Group 5 = science students). No statistically significant difference was found for any of the groups and total PSS scores. There was a statistically significant difference at the $p < .05$ level in empathy scores for the five course groups: F (4, 75) = 4.65, p = .002. The difference in mean scores between the groups was large, with an effect size = 0.20. This was calculated using eta squared. Post hoc comparisons using a Tukey HSD test showed that the mean score for Group 1 (M = 48.05, SD = 6.45) was significantly different from that of Group 2 (M = 54.67, SD = 4.81). Group 1, compromising of art and other students showed significantly lower empathy levels than Group 2, compromising of psychology students. None of the other groups differed significantly from one another.

Discussion

The objective of the current study was to examine whether a relationship exists between empathy levels and perceived social support amongst college students. The study also aimed to examine the impact of age range and gender on students' empathy levels. Previous research has shown that gender differences are often prevalent in empathy levels among students, with females showing higher levels of empathy than males (Duarte et al., 2016; Shin et al., 2021). There is limited research on levels of empathy and perceived social support between different college course groups, therefore the current study aimed to investigate whether there are significant differences in empathy and perceived social support amongst different college courses.

The study firstly hypothesised that there would be a positive correlation between perceived social support levels and empathy. This hypothesis was tested using a Pearson's correlation between participants' total perceived social support scores, generated from the ISEL-12, and total empathy scores, generated from the TEQ. Although a positive correlation was found, this relationship was non-significant. The strength of the relationship was extremely weak ($r = .12$, $p = .306$). The second hypothesis stated that age range, college course, gender, and perceived social support would predict variance in empathy level. A hierarchical multiple regression was run to test this hypothesis. The overall model reached significance, providing support for the hypothesis however, only two of the predictor variables, age range and gender, were significant in predicting variance in empathy level. This finding supports the hypothesis that gender and college course would predict variance in empathy level. The third hypothesis predicted that there would be significant gender differences in empathy level, favouring females. An independent samples t-test was run to compare differences in total empathy scores from the TEQ between males and females. The

hypothesis was supported, as a moderately large difference was found between scores of males and females. Overall, females showed higher empathy levels (M = 52.61) than males (M = 48.97). The final hypothesis predicted that there would be differences in empathy levels and perceived social support levels between different college courses. This hypothesis was tested using a one-way analysis of variance. Six college courses were included in this study, psychology, computers, business, art, science, and other. Before the ANOVA was run, arts students and other students were merged as one group. No statistically significant differences were found between any of the course groups and total perceived social support. Statistical significance however was found for differences in empathy levels between psychology students and arts and other students (p = .001), with psychology students showing higher levels of empathy than arts and other students.

Although non-significant, the study suggests that higher empathy levels have a slight association with higher levels of perceived social support. Similar results have been found amongst previous literature, with high perceived social support associated with high levels of empathy (Chen & Xu, 2021; Molero-Jurado et al., 2018). However, a significant relationship has been found between perceived social support and empathy levels in the forementioned literature, conflicting with the current result. There are several possible explanations why this relationship did not reach significance. Total scores for perceived social support as measured by the ISEL-12 were relatively high in this study, ranging 16-48, with a mean of 36.56 (SD = 6.77). Although there was quite a wide range, only a small minority of the ISEL-12 scores were below 30. One participant in this study also reported the high score of 48 for perceived social support. This high average overall could imply that perceived social support scores in the present study were higher than previous research. Having a high mean score like this does not leave a lot of room for comparison with lower social support, which

may have been the cause of a non-significant relationship between total empathy and total perceived social support. Ensuing research may benefit from a wider range of ISEL-12 scores amongst participants.

Another possible cause of the weak relationship between empathy and perceived social support in this study may be due to participants' competitive peer relationships. It is plausible that students may view their classmates as competition they must aim to outperform academically (Jairam & Kahl, 2012). Academic peers may make college experience unpleasant due to the competition that arises, which in turn can negatively impact empathy levels. While completing this study, students may have thought of their college social support group as competition. Although students may feel satisfied with their social support, they may not feel empathetic towards their peers, therefore negatively influencing the correlation between empathy and perceived social support in the current study.

Results from research question 2 and the hierarchical multiple regression found significance for age range and gender in predicting variance in empathy level. Significant age differences for empathy have been reported in previous research (Quince et al., 2016). Quince and colleagues (2016) found that students at graduate entry showed higher levels of empathy than standard entry students. The participants at graduate entry were assumed to be the oldest in the study. However, it is impractical to relate this finding to the current research. Participants at present were not asked what year of college they are in therefore it cannot be assumed that the youngest participants are at entry level. Secondly, the age range of college in the present study were heavily unevenly distributed. 61 of the 81 participants were in the age range 18-21. Although significance was shown, the age range findings in this study are impractical to compare with previous research. The significance of gender

differences in hypothesis 2 and hypothesis 3, however do show similarities to previous findings.

Current results are congruous with previous research that has shown gender differences in empathy level (Toussaint & Webb, 2005; Akgün et al., 2020; Hegazi & Wilson, 2013). Females have shown higher levels of empathy than males consistently in research using self-report measures (Clarke et al., 2016; Rueckert & Naybar, 2008; Kataoka et al., 2009). Previous research has suggested an emotional sensitivity hypothesis (Fischer et al., 2018), which states that females are more emotionally sensitive to subtle cues than males and may perceive emotions more intensely than males. This may have been a reason for the gender difference in empathy levels in this study, as females may have had a stronger reaction than males to the statements in the TEQ. Another possible explanation for significant differences is the influence of gender roles (Eisenberg & Lennon, 1983; Löffler & Greitemeyer, 2021). Females are often viewed in society as nurturing, caring, and invested in interpersonal relationships, hence females may have a desire to present themselves as empathetic to comply with this stereotype (Thomas & Maio, 2008). Males are assumed to be more reserved and not as highly expected as females to show emotion (Barrett & Bliss-Moreau, 2009). The differences in empathy level of the current study reflect the influence of gender role expectations found in previous research. Future research may benefit from helping males to improve their levels of empathy. A suggestion made previously to aid male empathy improvement is discussing the impact of gender stereotypes and their implications for empathy level (Daltry et al., 2018). If males can acknowledge the impact of gender stereotypes, they may be able to improve their empathy levels. This in turn may aid males in increasing their perception of social support which could lead to an overall higher quality of college experience.

Results show that psychology students had the highest empathy levels in the current study ($M = 54.67$, $SD = 4.81$). This correlates with earlier findings that suggest psychology students display high empathy levels (Rasoal et al., 2012; Harton & Lyons, 2003). Possible reasoning for the high empathy college students show is the personality of students who choose psychology, and a belief psychology students hold that empathy is needed to succeed in clinical and counselling roles (Harton & Lyons, 2003). Personality of psychology students may have influence over their high empathy levels, as the desire to look at things from another person's perspective can increase one's interest in choosing psychology in college. Subsequent research could benefit from examining empathy and personality of psychology students compared to students in different courses and determine whether personality is a significant influence over empathy level.

Empathy is important for all college students, as development of empathy can aid students' academic and social lives (Numanee et al., 2020). Development of empathy may be of benefit to students when navigating the emotions of a difficult course, such as computer programming (deOliveira, 2020). However, computing, business, or arts students may not have the same opportunities as psychology or science students to feel empathy in college. Psychology and science students have more opportunity in their course to learn about responding to needs of others, and therefore may have a greater opportunity to increase their empathy (Rasoal et al., 2012). Having poor empathic abilities may also be of detriment to students when seeking employment in their chosen course. Future research may benefit from exploring other methods to increase empathy in students when their college courses lack the chance of responding to others in need.

Implications and Future Directions

The findings from the current study highlight the importance of empathy for college students. Significant differences were found amongst empathy level in different college courses, and predictor variables age range and gender also significantly predicted variance in empathy levels. This is in line with prior findings that gender, and age have a significant effect on empathy level (Akgün et al., 2020; Chen et al., 2014; Hanson & Mullis, 1985). Surprisingly, none of the hypotheses in this study found significance for perceived social support in relation to empathy or any of the independent variables. The significant results of empathy are important to note in this study, as often previous research has suggested that a positive perception of social support helps one to combat loneliness, adjust to college life, and maintain levels of empathy (Salimi & Bozorgpour, 2012; Martinez-Lopez et al., 2019; Pamukçu & Meydan, 2010). The study at present put initial focus on the importance of perceived social support, and the rationale generated for this study placed emphasis on the importance of perceived social support for college students, based on the forementioned previous research. Results from the Pearson's Correlation suggest that empathy may be more meaningful than social support to college students, and the current result implies to subsequent researchers that rather than a focus on social support, developing and maintaining empathy may help college students to increase perceived social support. Increasing levels of empathy among college students may also be an effective intervention to improve students' adjustment to college and quality of college experience.

Strengths and Limitations

A strength of the current study was putting perceived social support and empathy on an equal playing field, as previous research surrounding perceived social support and

empathy has often implied that social support is the dominant variable of the two. Findings from this study may warrant future researchers against presuming social support is of greater importance to college students than empathy. The findings of the current study also suggest that a relationship exists among perceived social support and empathy, two concepts frequently examined as mediators of another variable in previous research. The significant impact of gender and college course in this study did influence this relationship however, as the relationship between empathy and perceived social support alone was not significant.

This study expands on previous research by insinuating empathy levels differ in different groups of college students. Often in previous research, empathy levels or perceived social support levels have been examined amongst one college course (Kalliopuksa, 1986; Shahini et al., 2011). The current result corresponds with previous evidence that psychology students display high levels of empathy (Harton & Lyons, 2003). However, there is evidence in this study that empathy levels differ amongst different course groups. Given the limited sample size, the study could not account for a wider range of courses however, future research can expand on this and further explore the methods to increase empathy among a wider range of course groups.

There are several limitations to the current study. The first limitation to note is the merging of arts students and other students to conduct a one-way ANOVA. As arts can refer to a wide range of courses, the merging of arts and other was deemed appropriate for the small sample size (n = 81) and the low number participants who selected arts (n = 7). This may have had an impact on results of the ANOVA, and it cannot be inferred that arts students had similar empathy scores to that of the miscellaneous student group. Psychology can be viewed as an art, however given the strong evidence for high empathy of psychology students shown in previous research (Kalliopuska et al., 1986; Rasoal et al., 2012; Harton & Lyons,

2003), sole examination of participants that selected psychology allowed for more accurate evidence that empathy is highest among psychology students. Limited research has explored empathy levels of arts students therefore examination of empathy levels of arts students may be an area for coming research to study.

The age range of participants in this study were extremely unevenly distributed. 64 participants were in the age range 18-21, while only 4 participants were aged between 26 and 29, and only 4 participants were 30 years old or over. As college student populations are often made up of young adults, and mature students are rarer amongst college courses, the researcher used this to group ages accurately, however, it is implausible to make inferences based on age in this study given the heavy uneven distribution. Had participants been asked their actual age, rather than age range, more accurate information regarding age differences in empathy and perceived social support levels may have been found.

The current study included one non-binary participant. As only one participant stated they were non-binary in the current study, there was not enough data to make gender comparisons that allowed for inclusion of non-binary college students, and this participant was excluded from analysis for the third hypothesis. Only one non-binary participant may have been due to the small sample size of this study, therefore it was implausible in this study to infer conclusions about the relationship between empathy and perceived social support in a non-binary student population. Future research must collect data from more non-binary participants to fairly assess if there is a statistically significant differentiation in empathy levels, or perceived social support, compared to males and females.

In conclusion, the present study has suggested to subsequent researchers that a relationship between empathy and perceived social support exists amongst college students.

The independent variables in this study, gender, age range, and college course, have provided future researchers with evidence that increasing empathy amongst males and courses with little opportunity for responding to needs of others may pave the way to improving perceptions of social support and outcomes at college. The findings at present suggest that empathy is beneficial to all college students and developing empathy should be treated as a crucial need for college students.

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Appendices

Appendix 1

Participant Information Sheet

You are invited to take part in this research study. Before deciding if you should take part, please take the time to read this form explaining why the study is being done and what participation involves for you. If you have any further questions about the information provided, please do not hesitate to contact me, the researcher, using the details at the end of this sheet.

What is This Study About?
I am a final year psychology student at NCI. Part of my degree involves conducting independent research. My research project is aiming to examine if there is a relationship between college students perceived social support and their level of empathy. The study will also examine the impact of gender, age, and course of study on the relationship between perceived social support and empathy among college students.

What Does this Study Involve for Me as a Participant?
As a participant your role is to complete two questionnaires. The Interpersonal Support Evaluation List-12 contains 12 questions about your perceived social support. The Toronto Empathy Questionnaire contains 16 questions about your empathic tendencies. You will be asked to answer every question in each of the two surveys.

How Long will Participation Take?
Total estimated time to complete the study is twenty minutes. If you participate, it will take approximately ten minutes to complete each questionnaire

Who Can Take Part?
As the study is examining the relationship between social support and empathy in a college student population, to participate in this study, you must be a student currently in third-level education. All participants must be aged 18 years or above.

Do I Have to Take Part?
The researcher would appreciate your time to take part in the study, however you are under no obligation to participate. You should only participate if you feel this study is appropriate for you. If you decide to participate, you will be asked to provide informed consent.

Your Right to Withdraw
You may withdraw participation from the study at any time up until the point of submitting responses to both questionnaires. Responses are anonymous, and you will not be able to withdraw consent after you have submitted responses as the researcher will not be able to identify individual data. No penalty will apply for your withdrawal before submitting responses. If you wish to withdraw, you can simply close the browser before submitting your responses.

Confidentiality
All data collected will be treated with strict confidence. No personally identifiable details are required from you. The survey is anonymous, it will be impossible to identify an individual from responses provided. All responses collected will be stored securely on the researcher's own computer. Only the researcher and academic supervisor will have access to the data. In compliance with the NCI data retention policy, the researcher will retain copies of the data for five years, it will be encrypted on a hard drive only the researcher has access to.

Benefits and Risks
You will not be offered any compensation to take part in this study. Your participation in this study will aid the researcher in examining if there is a correlation between empathy and perceived social support among college students. The researcher does not envision any physical or social risks to participants wellbeing. It is possible that some of the questions about personal perceived social support may cause some emotional distress to participants. Some questions will focus on participants' lack of support or isolation. The empathy questionnaire will also present participants with descriptions of another in mild distress, which may elicit personal distress. If you feel that these questions may cause you to experience an undue level of distress, you should not participate. If you become distressed at any point during the study, you may exit the study with no penalty. A list of support lines will be provided for you in the debriefing sheet.

What Will Happen to the Results of this Study?
The results of this study will be presented as part of my final year dissertation and submitted to NCI.

Who Should You Contact for Further Information?
If you have any further queries, please do not hesitate to contact the researcher, Julie McDonnell, at x19398886@student.ncirl.ie or the research supervisor, Dr April Hargreaves, PhD, at April.hargreaves@ncirl.ie

Appendix 2

Participant Consent Form

By ticking the agree box below:

- I voluntarily agree to take part in this research.
- I am a student in third-level education.
- I understand that my data will be used to help the researcher investigate the relationship between perceived social support and empathy in college students.
- I understand that my role involves completing the Interpersonal Support Evaluation List-12 and the Toronto Empathy Questionnaire.
- I have been given sufficient information about the nature of the study and my role in the study.
- I have been given the opportunity to ask any questions I have about the study.
- I understand that my data will be stored and encoded confidentially.
- I understand that my participation in this study will not make me identifiable in any published reports of this study.
- I understand that I am under no obligation to participate in this study and my participation is voluntary.
- I understand that my participation does not affect my current relationship with the researcher, or any faculty member at NCI.
- I understand that I can withdraw before finishing the questionnaires with no penalty.
- I understand that once I have submitted responses, I cannot request to withdraw my data.

☐ I Consent

Appendix 3

Debriefing Form

Social support is an important aspect of a college student's life, and the quality of social support one receives throughout college can have implications for their empathic tendencies. The aim of the present study is to investigate whether there is a correlation between perceived social support and empathy among college students.

The researcher wants to thank you for participating in this study. The data you have provided in the Interpersonal Support Evaluation List-12 and the Toronto Empathy Questionnaire will be analysed to examine the correlation between empathy and perceived social support. Your data will help the researcher investigate the direction of this relationship, and whether it is of statistical significance.

The data that you have provided for this study will be treated with strict confidence. The data will be stored securely and only the research team will have access to this data. As an individual participant, you will not be identified in any result, report, or articles that arise from this research project.

This study was designed to examine the correlation between perceived social support and empathy, therefore the questionnaires were conducted and designed to investigate participants personal experiences with these concepts. If your participation has raised any specific concerns or personal distress, please see the below helplines you can contact for further support regarding your personal concerns or distress.

Text SUPPORT to 50808 – 50808 offers free anonymous text support from a trained crisis volunteer for support through crisis or personal distress.

Samaritans – 01116123 – Samaritans offer free phone support from dedicated volunteers to reduce feelings of isolation, disconnection, and distress.

If you have any further queries about the research, your data, or your rights regarding this study, please do not hesitate to contact the researcher, Julie McDonnell, at the researcher's email address: x19398886@student.ncirl.ie or the academic supervisor, Dr April Hargreaves, PhD, at April.hargreaves@ncirl.ie

Appendix 4

Demographic Information

1. Please select your correct age range

   ☐ 18-21
   ☐ 22-25
   ☐ 26-29
   ☐ 30+

2. I am currently a student in third level education

   ☐ Yes
   ☐ No

3. Please select the most accurate description of your course of study

   ☐ Computers/IT
   ☐ Arts
   ☐ Business
   ☐ Science/Medicine
   ☐ Psychology
   ☐ Other

4. Please select the gender you identify as

   ☐ Male
   ☐Female
   ☐Non-Binary
   ☐Other

Appendix 5

Interpersonal Support Evaluation List-12

Description of Measure: 12-item scale measuring perceptions of social support. This scale is a shortened version of the original ISEL containing 40 items (Cohen & Hoberman, 1983). This questionnaire has three subscales to assess three dimensions of perceived social support. Dimensions are: 1. Appraisal Support, 2. Belonging Support, 3. Tangible Support. Social support is measured on a 4-point scale ranging from “Definitely True” to “Definitely False”.

Instructions: The scale consists of twelve statements, which may or may not be true about you. For each statement, select "definitely true" if you are sure it is true about you and "probably true" if you think it is true but not entirely sure. You should circle "definitely false" if you are sure the statement is false, and "probably false" if you think it is false but not entirely sure.

1. If I wanted to go on a trip for a day (for example, to the country or mountains), I would have a hard time finding someone to go with me.
   1.definitely false 2. probably false 3. probably true 4. definitely true

2. I feel that there is no one I can share my most private worries and fears with.
   1. definitely false 2. probably false 3. probably true 4. definitely true

3. If I were sick, I could easily find someone to help me with my daily chores.
   1. definitely false 2. probably false 3. probably true 4. definitely true

4. There is someone I can turn to for advice about handling problems with my family.
   1. definitely false 2. probably false 3. probably true 4. definitely true

5. If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with me.
   1. definitely false 2. probably false 3. probably true 4. definitely true

6. When I need suggestions on how to deal with a personal problem, I know someone I can turn to.
   1. definitely false 2. probably false 3. probably true 4. definitely true

7. I don't often get invited to do things with others.
   1. definitely false 2. probably false 3. probably true 4. definitely true

8. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.).
   1. definitely false 2. probably false 3. probably true 4. definitely true

9. If I wanted to have lunch with someone, I could easily find someone to join me.
   1. definitely false 2. probably false 3. probably true 4. definitely true

10. If I was stranded 10 miles from home, there is someone I could call who could come and get me.

1. definitely false 2. probably false 3. probably true 4. definitely true

11. If a family crisis arose, it would be difficult to find someone who could give me good advice about how to handle it.

1. definitely false 2. probably false 3. probably true 4. definitely true

12. If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me.

1. definitely false 2. probably false 3. probably true 4. definitely true

Appendix 6

The Toronto Empathy Questionnaire

Please read the below statements carefully and rate how often you feel or act the way described. Select your honest answer on the response form. There are no right or wrong answers. Please answer all questions as honestly as you can.

0 = NEVER
1 = RARELY
2 = SOMETIMES
3 = OFTEN
4 = ALWAYS

1. When someone else is feeling excited, I tend to get excited too
   0 1 2 3 4
2. Other people's misfortunes do not disturb me a great deal
   0 1 2 3 4
3. It upsets me to see someone being treated disrespectfully
   0 1 2 3 4
4. I remain unaffected when someone close to me is happy
   0 1 2 3 4
5. I enjoy making other people feel better
   0 1 2 3 4
6. I have tender, concerned feelings for people less fortunate than me
   0 1 2 3 4
7. When a friend starts to talk about his\her problems, I try to steer the conversation towards something else
   0 1 2 3 4
8. I can tell when others are sad even when they do not say anything
   0 1 2 3 4
9. I find that I am "in tune" with other people's moods
   0 1 2 3 4
10. I do not feel sympathy for people who cause their own serious illnesses
    0 1 2 3 4
11. I become irritated when someone cries
    0 1 2 3 4
12. I am not really interested in how other people feel
    0 1 2 3 4
13. I get a strong urge to help when I see someone who is upset
    0 1 2 3 4
14. When I see someone treated unfairly, I do not feel very much pity for them
    0 1 2 3 4
15. I find it silly for people to cry out of happiness
    0 1 2 3 4
16. When I see someone being taken advantage of, I feel kind of protective towards him\her
    0 1 2 3 4